ADDITIONAL FEES:

No additional fees are believed required; however, should it be determined that a fee is due, authorization is hereby given to charge any such fee to our Deposit Account No. 01-0268.

REMARKS

In the final Office Action, claims 1-8 and 10-21 were rejected under 35 U.S.C. §103 as being unpatentable over Miyazawa, Iino or Suzuki in view of Snek, Tokusima et al. or Kawai et al. for the same reasons set forth in the last Office Action, wherein the Examiner stated that each of Miyazawa, Iino and Suzuki disclose the self-excited vibration motor including a rotor, a stator base, a pressing means and a drive circuit. The Examiner acknowledged that the primary references do not explicitly disclose the use of electrical insulation in the claimed manner, but took the position that it would have been obvious to provide proper insulation to protect workers or equipment from shock hazards or short circuiting. The Examiner also pointed out that each of Saeki, Tokusima and Kawai teach that it is well known to provide piezoelectric ultrasonic motors with various parts formed of insulating material, including rotors, stators and pressing members.

By the present amendment, claims 1 and 13 have been amended in formal respects to correct an error. The body of each claim referred to a "conductor" instead of the --conductive member-- identified at line 4 of each claim. This non-substantive change does not necessitate further consideration or search and does not raise any new issues. Therefore, applicants respectfully request entry of the present amendment.

With respect to applicants' argument that electric shock avoidance provides no motivation to combine or modify the cited references, the Examiner stated that the claims do not recite the use of low power or any specific type of electronic component and thus shock elimination could serve as a motivation for providing insulation to the claimed combination of elements.

Applicants respectfully disagree with the Examiner's reasoning. The use of insulation to protect workers from electrical shock does not provide any motivation to modify the cited references to replicate the claimed invention. The claims explicitly recite an ultrasonic motor, which is a miniature, low voltage, device that does not produce a voltage or current sufficient to present an electrical shock hazard. The claims need not recite these inherent characteristics of an ultrasonic motor. Avoidance of electrical shock to workers

would not have led the ordinarily skilled designer to modify the cited references to include electrical insulation in the claimed manner.

The combined teachings of the references cited by the Examiner fail to disclose or suggest the claimed invention and fail to lead the ordinarily skilled practitioner to make the modifications necessary to replicate the claimed invention.

Independent claims 1 and 13 do not purport to claim exclusivity in the use of insulating materials in the construction of an ultrasonic motor. Independent claims 1 and 13 explicitly recite a specific configuration for an electrical apparatus having an ultrasonic motor and do not recite the general use of an insulator in an ultrasonic motor.

In particular, independent claims 1 and 13 recite a configuration having at least three distinct features which are absent from the cited references, including: (1) mounting of an ultrasonic motor to a conductive member of an electrical apparatus through which a power supply current is passed from a power supply to an electrical device; (2) mounting of the ultrasonic motor to the conductive member such that a current path would exist between the conductive member and an electrode of a piezoelectric element of the ultrasonic motor if the components of the ultrasonic motor were formed of

conductive materials; and (3) at least one component of the ultrasonic motor (claim 13) or at least one of the oscillating member, the pressing mechanism and the moving body of the ultrasonic motor (claim 1) which could, if formed of a conductor, provide the current path between the conductive member and the electrode of the piezoelectric element, is formed of an insulating material (or has an insulating coating) to prevent formation of the current path without the need for an additional insulator between the conductive member and the ultrasonic motor.

The claim rejections are directed solely to the obviousness of forming one or more elements of an ultrasonic motor using an insulating material and overlook the limitations of claims 1 and 13 described above. Applicants respectfully submit that claims 1 and 13 are not rendered obvious by prior art references which merely disclose that one or more elements of an ultrasonic motor may be formed of an insulating material. Such a rejection ignores the remaining elements of the claims.

The cited references do not disclose or suggest an electrical apparatus having an ultrasonic motor mounted to a conductive member through which a power supply current is passed. Nor do the cited references disclose or suggest that the ultrasonic motor is mounted to the conductive member such

that a current path would exist between the conductive member and an electrode of the piezoelectric element if the components of the ultrasonic motor were formed of conductive materials. There is no disclosure in the references cited by the Examiner that would have suggested the mounting of an ultrasonic motor directly to a conductive member of a device through which a current passes.

As described in the specification, it has become relatively common to form a mounting plate of a timepiece (to which the movement is mounted) of a conductive material so that the mounting plate can serve as a current path for carrying current from a battery to the timepiece movement. This is done to conserve space and reduce cost. In a prior art timepiece designed in this manner, however, when an ultrasonic motor is to be incorporated into the timepiece for driving a calendar wheel, the motor cannot be directly mounted to the conductive plate because a current path would be formed between the conductive plate and one or more electrodes of the piezoelectric element of the ultrasonic motor. As pointed out in the specification, the incorporation of an ultrasonic motor into the conventional timepiece necessitates redesign of the timepiece because the use of a conductive mounting plate is incompatible with the use of an ultrasonic motor.

Accordingly, steps taken to reduce the size and cost of the timepiece, such as the use of a conductive mounting plate, are rendered ineffectual when an ultrasonic motor is to be incorporated into the timepiece because the mounting plate must be formed of an insulating material to incorporate an ultrasonic motor in the timepiece so that the ultrasonic motor is not short-circuited by current flowing in the conductive mounting plate.

The claimed invention thus addresses a specific problem arising when an ultrasonic motor is mounted to a conductive member of an electronic device where a current path would otherwise exist between a power supply of the electronic device and a piezoelectric element of the ultrasonic motor. Independent claims 1 and 13 recite a structure in which an ultrasonic motor is mounted to a conductive member of an electronic apparatus carrying a power supply current thereof so that a potential current path exists between the power supply of the electronic device and the piezoelectric element of the ultrasonic motor. The claims do not merely recite a generic ultrasonic motor having an element formed of an insulating material. The claims explicitly require a specific configuration which results in the existence of a current path between the power supply for powering the self-oscillating drive circuit and the piezoelectric element of the conventional ultrasonic motor.

The cited references do not disclose or suggest the claimed configuration. The use of insulators in the construction of the ultrasonic motors of the cited references does not suggest the mounting configuration or the construction of the claimed ultrasonic motor. For instance, Tokusima et al. disclose a stator 3 formed over piezoelectric vibrators 1, 2 in an ultrasonic motor enclosed in a case. Mounting of the Tokusima et al. motor directly to a conductive member of an electrical apparatus through which a current passes would place the lower-most member of the Tokusima et al. motor (piezoelectric vibrator 2) in direct contact with the conductive member and would clearly short-circuit the piezoelectric vibrator 2. However, this problem would not be alleviated by forming another component of the Tokusima et al. motor of an insulating material. If the Tokusima et al. motor were mounted to a conductive member, no other component of the motor would lie between the piezoelectric vibrator 2 and the conductive member. Thus, it cannot be said that forming any component of the Tokusima et al. motor of an insulator would avoid the problem solved by the present invention.

The same argument applies to the ultrasonic motors of Saeki et al., Snek and Kawai et al. For instance, the base plate 1 of Saeki et al. forms a conductive path for electrode wiring 5a, 5b of the piezoelectric element. Thus, mounting of

the Saeki et al. motor to a conductive member would directly short-circuit the piezoelectric element to the conductive member and render the motor inoperable. However, if the base plate 1 were formed of an insulator, the conductive path would be broken and no power would be supplied to the piezoelectric element. In order to install the Saeki et al. motor in a timepiece as described above, it would be necessary to install an insulator under the conductive base plate 1. The use of an additional insulator in this manner is specifically what the claimed invention is intended to avoid, and the avoidance of the additional insulator is expressly recited in claims 1 and 13. Kawai et al. and Snek disclose similar ultrasonic motors suffering from the same problems as the motor of Saeki et al.

Applicants respectfully submit that the Examiner misconstrued the claims as merely reciting the "placement" of an insulator, which the Examiner contends to be an obvious matter of design choice. The claimed invention does not relate to placement of an insulator, but to a specific configuration for an electrical apparatus. The present invention recited in claims 1 and 13 requires the mounting of an ultrasonic motor to a conductive member of an electrical apparatus. The conductive member is utilized to carry a power supply voltage. The ultrasonic motor is constructed such that the current flowing in the conductive member drives the self-

excited oscillation circuit of the motor, which is mounted to the conductive member, but the piezoelectric element of the motor is not short-circuited by the conductive member. The claimed configuration allows a motor to be mounted in an electrical apparatus without redesigning the apparatus and allows a size reduction by eliminating the need for an additional insulator. The ultrasonic motors of the prior art references can not be mounted to a conductive member and do not avoid the need for the additional insulator.

The inventive ultrasonic motor is required by claims 1 and 13 to be mounted in the electronic apparatus in a particular manner and to have a particular construction. The combination of elements recited in the claims results in the reduction in size of the apparatus and the elimination of the additional insulator required to mount the prior art ultrasonic motor to an electrical apparatus. The cited references do not suggest the requirements of claims 1 and 13.

By merely forming an indiscriminate component of the motor of an insulating material, a current path between the power source and the piezoelectric element would not be prevented unless the ultrasonic motor is mounted so that such component prevents any electrical contact between a conductive member and the piezoelectric element. Since the cited references contain no disclosure of mounting an ultrasonic

motor directly to a conductive member, the obviousness rejections do not satisfy the standard for obviousness under 35 U.S.C. §103(a) and the rejection of claims 1-8 and 10-21 should therefore be withdrawn.

A claim rejection based upon obviousness must be supported by evidence establishing the obviousness of each and every limitation of a rejected claim. Such evidence may consist of a reference which directly establishes this lack of novelty, or a line of reasoning consistent with and motivated by the cited art establishing that such limitations would have been obvious. Anything else is inadequate to meet this burden. There must be some teaching, reason, suggestion, or motivation found in the prior art that renders every limitation of a claim obvious to support an obviousness rejection under 35 U.S.C §103(a). See, e.g., Symbol Technologies, Inc. v. Opticon, Inc., 935 F.2d 982, 989, 18 USPQ2d 1885 (Fed. Cir. 1991). This burden cannot be met by citing references that, even if combined, fail to teach explicitly recited limitations.

Stated otherwise, an obviousness rejection under 35 U.S.C §103(a) cannot rely solely upon a combination of references that teach some limitations of a claim and omit others.

A continued rejection of independent claims 1 or 13 under §103(a) cannot be supported on the basis of the cited references. As pointed out by the Board in Ex Parte Clapp, 227 USPQ 972, 973 (BPAI 1985):

> To support the conclusion that the claimed combination is directed to obvious subject matter, either the references must expressly or impliedly suggest the modifications urged by the examiner to have been obvious.

The same situation exists here. There is nothing in the references that would expressly or impliedly teach or suggest the modifications required to the cited references to replicate the claimed invention. Nothing in any of the cited references would have suggested to one of ordinary skill in the art the mounting of an ultrasonic motor directly to a conductive member of an electronic device such that a current path between a power supply of the apparatus and a piezoelectric element of the motor exists, and the formation of a member of the ultrasonic motor formed of an insulating material, or with an insulating surface, to eliminate this current path. The use of an insulating material to form an arbitrary part of an ultrasonic motor does not eliminate the above-described current path.

Nor does the simplicity of the invention as expressed by the Examiner serve as a sufficient ground for

rejecting the claims as obvious. In a proper obviousness determination, "[w]hether the changes from the prior art are 'minor', ... the changes must be evaluated in terms of the whole invention, including whether the prior art provides any teaching or suggestion to one of ordinary skill in the art to make the changes that would produce the patentee's ... device." Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 935, 15 USPQ2d 1321, 1324 (Fed. Cir.), cert. denied, 498 U.S. 920 (1990). This includes what could be characterized as simple changes, as in In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (Although a prior art device could have been turned upside down, that did not make the modification obvious unless the prior art fairly suggested the desirability of turning the device upside down).

The mere fact that the prior art could be modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. See Carl Schenck, A.G. v. Nortron Corp., 713 F.2d 782, 787, 218 USPQ 698, 702 (Fed. Cir. 1983), and In re Sernaker, 702 F.2d 989, 995-96, 217 USPQ 1, 6-7 (Fed. Cir. 1983), both citing In re Imperato, 486 F.2d 585, 587, 179 USPQ 730, 732 (CCPA 1973). As demonstrated above, if the prior art ultrasonic motors were directly mounted to a conductive member without interposing an insulative member therebetween, they would be rendered

inoperable for their intended purpose because an electrode of the piezoelectric element would be short-circuited. The present invention provides a configuration by which an additional insulator is not needed for this purpose. The prior art provides no motivation to effect such a modification.

In view of the foregoing, applicants respectfully submit that claims 1-8 and 10-21 are not rendered obvious by the cited references and that the rejection under 35 U.S.C. §103 should be withdrawn.

In view of the foregoing amendments and discussion, the application is now believed to be in condition for allowance. Accordingly, favorable reconsideration and allowance of the claims are most respectfully requested.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 1 and 13 have been amended as follows:

1. (Three Times Amended) In an electrical apparatus having a power supply for supplying power to an electrical device and a movable member driven by an ultrasonic motor, the ultrasonic motor being mounted to a conductive member through which a power supply current is passed from the power supply to the electrical device, the ultrasonic motor comprising: a driving circuit for producing an oscillatory wave; a power source for powering the driving circuit; a piezoelectric element driven by the driving circuit to undergo vibration, the piezoelectric element and the driving circuit cooperating to form a self-oscillation circuit; an oscillating member in contact with the piezoelectric element for oscillating in response to vibration of the piezoelectric element; a moving body contacting the oscillating member to undergo movement in response to oscillation of the oscillating member; and a pressing mechanism for urging the moving body against the oscillating member; wherein the ultrasonic motor is mounted to the conductive member [conductor] such that a current path would exist between the conductive member [conductor] and an electrode of the piezoelectric element if the components of

the ultrasonic motor were formed of conductive materials, and at least one of the oscillating member, the pressing mechanism and the moving body which could, if formed of a conductor, provide the current path between the conductive member [conductor] and the electrode of the piezoelectric element is formed of an insulating material so as to prevent formation of the current path without the need for an additional insulator between the conductive member [conductor] and the ultrasonic motor.

13. (Twice Amended) In an electronic apparatus having a power supply for supplying power to an electrical device and a movable member driven by an ultrasonic motor, the ultrasonic motor being mounted to a conductive member [serving] through which a power supply current is passed from the power supply to the electrical device, the ultrasonic motor comprising: a piezoelectric element; a driving circuit cooperating with the piezoelectric element to form a self-oscillation circuit for vibrating the piezoelectric element; a power source for supplying power to the elctronic apparatus and to the driving circuit; an oscillating member in contact with the piezoelectric element to undergo oscillation in response to vibration of the piezoelectric element; a moving body disposed on the oscillating member to undergo movement in response to oscillation of the oscillating member; and a

pressing mechanism for urging the moving body against the oscillating member; wherein the ultrasonic motor is mounted to the conductive member [conductor] such that a current path would exist between the conductive member [conductor] and an electrode of the piezoelectric element if the components of the ultrasonic motor were formed of conductive materials, and at least one component of the ultrasonic motor which, if formed with a conductive surface, could serve as the current path between the conductive member [conductor] and the electrode of the piezoelectric element, is formed with an insulating surface so that an additional insulator is not needed between the conductive member [conductor] and the ultrasonic motor.